

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IL2006/000373

International filing date (day/month/year)  
23.03.2006

Priority date (day/month/year)  
23.03.2005

International Patent Classification (IPC) or both national classification and IPC  
INV. G06F3/033 G06F3/043

Applicant  
EPOS TECHNOLOGIES LIMITED

#### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

#### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

#### 3. For further details, see notes to Form PCT/ISA/220.

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Date of completion of  
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see form  
PCT/ISA/210

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of:
  - ☒ the international application in the language in which it was filed
  - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in electronic form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IL2006/000373

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**Box No. V Reasoned statement under Rule 43*b/s*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	<u>1 4 8-10 17 18 20 21 24 25 28-33 35 38-40 45-47</u>
	No: Claims	<u>2 3 5-7 11-16 19 22 23 26 27 34 36 37 41-44</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-47</u>
Industrial applicability (IA)	Yes: Claims	<u>1-47</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Prior art documents**

Reference may be made to the following documents:

- D1: WO 03/069547 A1 (Anoto AB)
- D2: WO 02/01466 A2 (Virtual Ink Corp.)
- D3: WO 01/35329 A1 (Itpen Ltd.)
- D4: US 2004/0032399 A1 (Sekiguchi et al.)
- D5: US 4 991 148 A (Gilchrist)

**2. Clarity - Article 6 PCT**

- 2.1. The present application does not meet the requirements of Article 6 PCT since the claims are not concise.

In view of the nature of the subject-matter disclosed in the description of the present application, the number of independent claims presently on file is excessive, which places an undue burden on the reader to determine precisely which features, or combination thereof, it is desired to protect (i.e. which features constitute the actual invention).

- 2.2. Moreover, the applicant is advised that objections as to lack of unity may be raised, since the features of the independent claims as presently on file are so disparate that they do not appear, at first glance, to satisfy the requirements of Rule 13 PCT. It cannot be argued that, for example, claim 1 has one or more special technical features identical to or corresponding to those of claims 23, 26 and 41. In addition, the features of many of the independent claims are either known from, or obvious with respect to, the prior art (see section 3 below).

- 2.3. In addition to the above, independent claim 31 is not clear because its last two lines contain the incomprehensible phrase "and a map, configured to graphically map said predefined area, so as to assist a user in positioning the digital pen in said predefined area". It is not apparent what this is supposed to mean, even with reference to the description, since this phrase is also used there (on page 7, lines 18-19) without any further explanation.
- 2.4. Independent claim 39 is not fully supported by the description, since the acoustic signal receivers referred to in line 5 of the claim are, according to the description, "positioned inside said housing, less than 65 mm apart from each other" (see e.g. page 9, last line - page 10, first line and page 31, lines 8-10), not "... less than 60 mm apart..." as recited in the claim.

**3. Novelty and inventive step- Article 33(2) and 33(3) PCT**

Notwithstanding the above objections to lack of clarity, the following observations on novelty and inventive step are made:

**3.1. Independent claim 1**

Digital pen comprising an electric circuit, an acoustic transmitter detached from said circuit and a resilient holder for electrically connecting a first electrical circuit with a second electrical circuit on application of mechanical pressure.

Document D1 has been identified as the closest prior art and discloses, the numerals in parentheses referring to this document:

a digital pen (10) comprising an electric circuit (32), a communications unit (26) and a resilient holder (18) configured to electrically connect electric circuit (32) with communications unit (26) on application of mechanical pressure (see figures 1-4C and page 8, line 25 - page 10, line 6).

D1 thus differs from the subject-matter of claim 1 in that the communications unit (i.e. transmitter) (26) is not necessarily acoustic.

However, the person skilled in the art knows to choose the precise form of communications unit according to the brief he is given and would provide the device of D1 with an acoustic transmitter as the communications unit if this were required.

Since he need expend no inventive activity in so equipping the device of D1 to arrive at the subject-matter of claim 1, the subject-matter of this claim does not involve an inventive step in the sense of Article 33(3) PCT.

3.2. Independent claim 9

The subject-matter of claim 9 relates to the construction and form of a resilient holder configured for locating two electric circuits thereon within the confines of a housing so as to bring about an electrical contact between them.

This is known from D1 (see figures 2 and 4), thus, the subject-matter of this claim cannot be considered to be novel in the sense of Article 33(2) PCT.

3.3. Independent claim 10

Digital pen comprising a switch assembly having 3 modes depending on how switch is pressed:

Multi-mode rocker switches having three operating positions are well-known in the prior art. Their use in a digital pen must be considered an obvious measure for the skilled person, if the brief he is given requires such a solution, since digital pens having switches to change their operating mode are commonplace. The skilled person does not need to apply any inventive energy in choosing the type of switch most suitable for his requirements.

For this reason, the subject-matter of claim 10 cannot be considered to involve an inventive step in the sense of Article 33(3) PCT.

3.4. Independent claim 12

Digital pen having a pen tip, acoustic transmitter proximate to pen tip and a smooth contact switch):

known from e.g. D2 (see figs 1A, 2B and page 4, line 30 - page 5, line 19), D3 (see fig. 2 and page 22, line 12- page 23, line 5) and D4 (see fig. 2A and paragraph [0042]).

Hence, the subject-matter of claim 12 is not novel in the sense of Article 33(2) PCT.

### 3.5. Independent claim 20

Digital pen having elongated body, writing element protruding from a writing tip, acoustic transmitter and a rotating cover to selectively cover and expose writing element.

This can be considered to be an obvious measure to the person skilled in the art of digital pens, since he is aware that digital pens are designed to have the ease of use of "normal" pens and that they, in many cases, also have means for writing, such as ink, in addition to acoustic or IR transmitters, such that they can be used like ordinary (i.e. non digital) pens. If the person skilled in the art were given the brief to develop a digital pen having a retractable tip, by using a rotatable cover, he would immediately look to the field of ordinary pens for solutions to this problem and would use the most appropriate solution from that field without modification- bar the obvious necessity of mounting an acoustic transmitter in a suitable manner, which latter is in any case part of his normal activities.

For these reasons, the subject-matter of claim 20 cannot be considered to involve an inventive step in the sense of Article 33(3) PCT.

### 3.6. Independent claim 21

Refers to a digital pen having a writing element on a retractable writing tip (tip is attached to an elongated body that is moveable inside housing to selectively cover or expose writing element). This can be considered to be an obvious measure to the

person skilled in the art of digital pens for the same reasons as given in section 3.5 above

For these reasons, the subject-matter of claim 21 cannot be considered to involve an inventive step in the sense of Article 33(3) PCT.

**3.7. Independent claim 23**

Relates to a digital pen having two acoustic transmitters spaced apart.

This is known from each of D3 (see figs. 1B, 1C, 1D, 1J and fig. 2), D5 (see figure 1, column 3, lines 60-62) and EP 1 450 296 A2 (cited in the international search report- see figs 1, 2, 4, 7 and 8).

Hence, the subject-matter of claim 23 is not novel in the sense of Article 33(2) PCT.

**3.8. Independent claim 24**

Relates to a digital pen having an acoustic waveguide in the form of a plurality of fins radiating outwardly in a direction away from acoustic signal transmitter.

Referring to document D2 and, especially, figures 1A and 1B in combination with page 8, lines 6-12, it would appear that the cage 21 protecting the acoustic transmitter also functions as a waveguide, though no details of such use are given. However, in view of the fact that part 21 has not been constructed as a solid unit, it can be assumed that the cage also serves this function.

Having knowledge of D2, the skilled person would arrive at the subject-matter of claim 24, without adaptation, meaning that it does not involve an inventive step in the sense of Article 33(3) PCT.

**3.9. Independent claim 26**

Relates to a receiving unit for receiving an acoustic signal from a digital pen having at



least two ultrasound receivers and an electric circuit for extracting ultrasound signals using a reference model.

This is known from D5 (see figures 1, 2, 7-11 and col. 6, line 13 - col. 8, line 58).

Hence, the subject-matter of claim 26 is not novel in the sense of Article 33(2) PCT.

3.10. Independent claim 31

Relates to a digital pen system, including a digital pen, at least one receiving unit having a processor and a mapped area.

Notwithstanding the objection to lack of clarity raised in section 2.3, the subject-matter of this claim cannot be considered as involving an inventive step because it is obvious to the person skilled in the art of digital pens. The examiner has considered page 31, line 15 - page 32, line 6 of the description to interpret what could be meant by the terms "predefined area" and "map" as recited in the claim.

Using this interpretation, the digital pen in conjunction with the receiving unit functions in the manner of a digitiser, since the precise location (co-ordinates) of the pen on or above a surface can be determined. The skilled person is well aware that digitisers can have pre-defined areas corresponding to certain functions and that these can be marked on the surface.

Having knowledge of document D5, the skilled person would readily realise that the only differences between the disclosure of that document and the subject-matter of claim 31 are:

- (1) The digital pen has a writing tip
- (2) The surface is graphically marked with predefined functions or icons

Since, however, both (1) and (2) are part of the skilled person's general knowledge, he would readily apply the teaching of D5 in combination with his general knowledge to arrive at the subject-matter of claim 31, without the use of inventive activity.

For these reasons, the subject-matter of claim cannot be considered to involve an inventive step in the sense of Article 33(3) PCT.

3.11. Independent claim 32

Relates to the use of a digital pen having a construction identical to that of claim 1 with a receiver for determining its position. Since the construction of the pen is not considered to be inventive (see section 3.1.) and the use of a digital pen in combination with a receiver is known, as clearly demonstrated by the documents cited in the international search report, the subject-matter of this claim does not involve an inventive step in the sense of Article 33(3) PCT.

3.12. Independent claim 33

Relates to the use of a digital pen having a construction identical to that of claim 10 with a receiver for determining its position. Since the construction of the pen is not considered to be inventive (see section 3.3.) and the use of a digital pen in combination with a receiver is known, as clearly demonstrated by the documents cited in the international search report, the subject-matter of this claim does not involve an inventive step in the sense of Article 33(3) PCT.

3.13. Independent claim 35

Relates to the use of a digital pen having a construction identical to that of claim 12 with a receiver for determining its position. The construction and use of the smooth contact switch is disclosed in D2 (see same references as in 3.4. above, especially figures 4A and 4B) and the use of a digital pen in conjunction with a receiving unit is known (see documents cited in the ISR).

Hence, the subject-matter of claim 35 cannot be considered to involve an inventive step in the sense of Article 33(3) PCT.

3.14. Independent claim 37

Relates to the use of a digital pen with a receiving unit having at least two ultrasound receivers and extracting signals using a reference model.

This is disclosed in D5 (see same references as given in 3.8. above with respect to claim 26).

Hence, the subject-matter of claim 37 is not novel in the sense of Article 33(2) PCT.

### 3.15. Independent claim 39

Relates to a digital pen and a receiving unit in which receivers are placed less than 60mm apart from each other and further having a processor to process the received signals.

The only difference between the subject-matter of this claim and the disclosures of D3 and D4 is:

- that the receivers are spaced less than 60 (sic) mm apart.

As no advantages or surprising technical effects of this value for the separation are indicated in the description, it must be assumed to be an arbitrary selection amounting to nothing more than a design choice. Since it furthermore cannot be determined which objective technical problem this precise separation is intended to solve, it cannot be considered to involve an inventive step.

Hence, the subject-matter of claim 39 cannot be considered to meet the requirements of Article 33(3) PCT since it does not involve an inventive step.

### 3.16. Independent claim 41

Relates to a smooth contact switch having a resilient element compressible into a position for closing an electric circuit.

This is disclosed in D2 (see figures 4A, 4B), hence the subject-matter of claim 41 is

not novel in the sense of Article 33(2) PCT.

3.17. Independent claim 47

Relates to a digital sleeve having an acoustic transmitter and mountable on a writing instrument configured to detect a predefined movement of the writing instrument in relation to the digital sleeve.

Although no further details are given in the description of the present application as to what the "predetermined movement" is supposed to mean, it is obvious to the skilled person that he can use the disclosure of D3 (see especially figs 6A-6C) without adaptation to arrive at the subject-matter of claim 47.

Hence, the subject-matter of independent claim 47 does not involve an inventive step in the sense of Article 33(3) PCT.

3.18. Dependent claims

Regarding claims 2, 5 and 6 (construction of resilient holder): known from D1 (see figures 2 and 4).

Regarding claim 3 (transmitter is an ultrasound transducer)- obvious from prior art (see any of D2-D5).

Regarding claim 4 (resilient holder is electrically conductive): not apparent which problem this is supposed to solve in view of its function, as defined in claim 1, being to mechanically press one electric circuit into electrical contact with another.

Regarding claim 6 (housing applies mechanical pressure on holder): known from D1 (see fig. 1).

Regarding claim 7 (housing of pen has changeable cover): a design consideration

Regarding claim 8 (pen comprises a plurality of infra red emitters): obvious to the skilled

person (redundancy in case of defect or obstruction).

Regarding claim 11 (switch formed of rod and fulcrum): constructional feature of three mode rocker switches,

Regarding claims 13-16 and 42-44 (construction of smooth contact switch and its activation): known from D2 (see figs 4A, 4B and accompanying text).

Regarding claims 17, 18, 45 and 46 (pressure required to activate switch and compression of resilient element): obvious to the skilled person, who would determine the optimum values for these by experimenting, which forms part of his normal activities.

Regarding claim 19 (writing pressure on smooth contact switch is generated on digital pen touching a surface): known from each of D2-D5.

Regarding claim 22 (spring urges elongated body into position such that writing tip is covered): a conventional means of providing a retractable writing tip in, for example, retractable ball point pens. Its use in a digital pen is obvious to the skilled person since he would look to the field of conventional pens for solutions applicable to digital pens.

Regarding claim 25 (fins positioned to divide region about transmitter into plural directional sectors): considered to be obvious for the skilled person having knowledge of D2 (see figs 1A, 1B).

Regarding claim 27 (ultrasound receivers at least one of electret microphones or MEMS microphones (known from D5- see col. 5, lines 47-50)).

Regarding claims 28, 30, 37, 38 and 40 (receiving unit has housing and attachment device for attaching unit to another item): housing is disclosed in D3 and D4, attachment device an obvious design consideration for the skilled person when given the brief to make the unit securely attachable and removable to another device/item.

Regarding claim 29 (ultrasound receivers are less than 65 mm apart): an arbitrary choice for the reasons given in section 3.15 above therefore not inventive.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

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Regarding claims 34 and 36 (processor associated with receiving unit detects mode of digital pen and actuation of pen): known from e.g. EP 1 450 296, cited in the international search report (see paragraph [0023]).